

## 7.00: Definitions

SPECIAL AND EXTREME SOLVENT METAL CLEANING means the use of degreasers:

- (a) To clean metal parts used in the manufacturing and rework of electronic parts, assemblies, boxes, wiring harnesses, sensors and connectors used in aerospace service;
- (b) To clean metal parts used in the manufacturing of ozone, nitrous oxide, fluorine, chlorine, bromine, halogenated compounds, or oxygen in concentrations greater than 23%; or
- (c) To clean metal parts exposed to ozone, nitrous oxide, fluorine, chlorine, halogenated compounds, or oxygen in concentrations greater than 23%.

HIGH PRECISION PRODUCTS means products for which contamination must be minimized in accordance with a customer or other specification including but not limited to:

- (a) Products for use in extreme environments;
- (b) Products covered by rigorous military or commercial specifications that require extremely accurate and quality controlled manufacturing; and
- (c) Products with quality standards that do not allow for potential excess contamination.

## 7.18: U Volatile and Halogenated Organic Compounds

### (8) U Solvent Metal Degreasing.

(a) Cold Cleaning Degreasing. On or after September 6, 2009, no person owning, operating, leasing or controlling any solvent metal degreasing facility which utilizes a cold cleaning degreaser (that is able to contain more than one liter of solvent) shall cause, suffer, allow or permit emissions of volatile organic compounds therefrom unless they comply with the requirements in 310 CMR 7.18(8)(a)1 through 310 CMR 7.18(8)(a)3.

1. The solvent used in a cold cleaning degreaser shall have a vapor pressure that does not exceed 1.0 mm Hg measured at 20C. This requirement shall not apply to the following:

- a. cold cleaning degreasers used in special and extreme solvent metal cleaning;
- b. cold cleaning degreasers for which the owner or operator has received Department approval of a demonstration that compliance with the requirement to use a solvent with a vapor pressure of 1.0 mm Hg or less at 20C will result in unsafe operating conditions; ~~and~~

c. cold cleaning degreasers that are located in a permanent total enclosure having control equipment that is designed and operated with an overall VOC control efficiency of 90% or greater; and

~~e.~~ d. cold cleaning degreasers used in the cleaning of high precision products for which the owner or operator has received Department approval.

2. Any leaks shall be repaired immediately, or the degreaser shall be shut down.

3. The following requirements shall apply unless the cold cleaning degreaser is a sink-like work area with a remote solvent reservoir with an open drain area less than 100 square centimeters;

- a. Each cold cleaning degreaser is equipped with a cover that is designed to be easily operated with one hand;
- b. Each cold cleaning degreaser is equipped to drain clean parts so that, which draining, the clean parts are enclosed for 15 seconds or until dripping ceases, whichever is longer;
- c. Each cold cleaning degreaser is designed with:

- i. emission control equipment design specifications; or
  - ii. emission control equipment capture and/or destruction efficiency standards; or
  - iii. emission limits (except emission limits per year or rolling 12 month average);
- or

d. The covers of each cold degreaser are closed whenever parts are not being handled in the degreaser, or when the degreaser is not in use; and

e. The drafts across the top of each cold cleaning degreaser are minimized such that when the cover is open the degreaser is not exposed to drafts greater than 40 meters per minute (1.5 miles per hour), as measured between one and two meters upwind at the same elevation as the tank lip.

(b) Vapor Degreasing. On or after December 31, 1980 no person owning, leasing operating or controlling a solvent metal degreasing facility which utilizes a vapor degreaser shall cause, suffer, allow or permit emissions therefrom unless:

1. each vapor degreaser is equipped with a cover designed to be easily operated in manner which will not disturb the vapor zone; and
2. each vapor degreaser is covered except when work loads are being loaded, unloaded or degreased in the degreaser; and
3. each vapor degreaser is equipped with the following safety switches which are maintained and operated in accordance with the recommendations of the manufacturer:
  - a. a switch designed to shut off the heating source for the sump if the condenser coolant is either not circulating, or the solvent vapor level has risen above the primary coil; and
  - b. a switch designed to shut off the spray pump if the solvent vapor level drops more than ten centimeters (four inches) below the lowest condensing coil; and
4. at least one of the following devices has been installed on each vapor degreaser, and that device is maintained and operated in accordance with the recommendations of the manufacturer:
  - a. a freeboard ratio equal to or greater than 0.75 and, a power cover, if the degreaser opening is greater than one square meter (ten square feet); or,
  - b. a refrigerated chiller; or,
  - c. an enclosed design whereby the cover is open only when the dry part is entering or exiting the vapor degreaser; or,
  - d. an adsorption system with ventilation greater than or equal to 15 cubic meters per minute per square meter (50 cubic feet per minute per square foot) of air/vapor area (determined when the degreaser's cover is open) which exhausts less than 25 parts per million of solvent by volume averaged over one complete adsorption cycle or 24 hours whichever is less; or,
  - e. any other device, demonstrated to have a control efficiency equal to or greater than any of the above, approved by the Department and EPA; and,
5. solvent carry out from each vapor degreaser is minimized by:
  - a. racking parts to allow for complete drainage; and,
  - b. moving parts in and out of the degreaser at less than 3.3 meters per minute (11 feet per minute); and,
  - c. holding the parts in the vapor zone for 30 seconds or until condensation ceases, whichever is longer; and,
  - d. tipping out any pools of solvent on the cleaned parts before removal from the vapor zone; and,
  - e. allowing parts to dry within the degreaser for 15 seconds or until visually dry, whichever is longer; and,

6. no porous or absorbent material, such as, but not limited to cloth, leather, wood or rope is placed in the vapor degreaser; and,
7. less than half of the degreaser's open top area is occupied with a workload; and,
8. each degreaser is operated so that the vapor level does not drop more than ten centimeters (four inches) when the workload is removed from the vapor zone; and,
9. operators always spray within the vapor zone; and,
10. liquid leaks in each vapor degreaser are repaired immediately, or the degreaser is shut down; and,
11. each degreaser is operated so as to prevent water from being visually detected in the solvent exiting the water separator; and,
12. each degreaser is located and operated in such a manner that it is not exposed to drafts greater than 40 meters per minute (131 feet per minute) as measured between one and two meters upwind at the same elevation as the tank lip, nor is it provided with an exhaust ventilation system which exceeds 20 cubic meters per minute per square meter (65 cubic feet per minute per square foot) of vapor degreaser open area, unless such an exhaust ventilation system is necessary to meet OSHA requirements; and,
13. the cover is located below the lip exhaust, if the vapor degreaser is equipped with a lip exhaust.

(c) Conveyorized Degreasing. On or after December 31, 1980 no person who owns, leases, operates or controls a solvent metal degreasing facility which utilizes a conveyorized degreaser shall cause, suffer, allow or permit emissions therefrom, unless:

1. at least one of the following devices has been installed on each conveyorized degreaser with an air/vapor interface greater than 21.5 square feet, and that device is maintained and operated in accordance with the recommendations of the manufacturer:
  - a. a refrigerated chiller; or,
  - b. an adsorption system with ventilation greater than or equal to 15 cubic meters per minute per square meter (50 cubic feet per minute per square foot) of air/vapor area (determined when the degreaser's downtime covers are open) which exhausts less than 25 parts per million of solvent by volume averaged over one complete adsorption cycle or 24 hours whichever is less; or,
  - c. any other device, demonstrated to have a control efficiency equal to or greater than any of the above, approved by the Department and EPA; and,
2. each conveyorized degreaser is designed and operated to prevent cleaned parts from carrying out the solvent liquid or vapor, for example equipping the degreaser with a drying tunnel or rotating (tumbling) basket; and
3. each conveyorized degreaser is equipped with the following safety switches which are maintained and operated in accordance with the recommendations of the manufacturer:
  - a. a switch designed to shut off the heating source for the sump if the condenser coolant is either not circulating, or if the solvent vapor level has risen above the primary coil; and
  - b. a switch designed to shut off the spray pump or the conveyor if the solvent vapor level drops more than ten centimeters (four inches) below the lowest condensing coil; and
4. the openings of each conveyorized degreaser are minimized during operation such that average clearance at the entrances and exits of the degreaser between the workloads and the edge of the degreaser opening is less than ten centimeters (four inches) or 10% of the width of the opening; and,
5. covers are placed over the entrances and exits of each conveyorized degreaser immediately after the conveyors and exhausts are shut down, and the covers are left in place until just prior to start-up; and,
6. solvent carry out from each conveyorized degreaser is minimized by:

- a. racking parts to allow for complete drainage; and,
  - b. maintaining the vertical conveyor speed at less than 3.3 meters per minute (11 feet per minute); and,
7. leaks in each conveyorized degreaser are repaired immediately, or the degreaser is shutdown; and,
8. each conveyorized degreaser is operated so as to prevent water from being visually detected in solvent exiting the water separator; and,
9. no conveyorized degreaser is provided with an exhaust ventilation system which exceeds 20 cubic meters per minute per square meter (65 cubic feet per minute per square foot) of vapor degreaser open area, unless such an exhaust ventilation system is necessary to meet OSHA requirements; and,
- (d) Aqueous Cleaning: any aqueous cleaner in which all the following conditions are satisfied is exempt from the requirements of 310 CMR 7.18(8)(a), (b), and (c):
1. All organic material in the cleaning fluid is water soluble; and
  2. The cleaning fluid contains no more than 5% by weight organic material, excluding soaps.
- (e) On or after December 31, 1980 any person subject to 310 CMR 7.18(8)(a), (b), or (c) ~~or (d)~~ shall operate any solvent metal degreaser using procedures which minimize evaporative emissions and prohibit spills from the use of said degreaser. Such procedures include but are not limited to:
1. notification to operators of the performance requirements that must be practiced in the operation of the degreaser, including the permanent and conspicuous posting of labels in the vicinity of the degreaser detailing performance requirements; and
  2. storage of waste degreasing solvent in closed containers, and disposal or transfer of waste degreasing solvent to another party, in a manner such that less than 20% of the waste degreasing solvent by weight can evaporate into the atmosphere; and
  3. where applicable, supplying a degreasing solvent spray which is a continuous fluid stream (not a fine, atomized or shower type spray) at a pressure which does not exceed ten pounds per square inch as measured at the pump outlet, and use any such spray within the confines of the degreaser, except for cleaning of high precision products, for which such person has received Department approval to use spray operations with non-continuous fluid stream or pressure greater than ten pounds per square inch, provided that such person shall:
    - i. Limit the amount of solvent consumed in such spray operations at the premises to less than 3,000 gallons in any 12-month period, excluding solvent captured and recycled;
    - ii. Use a solvent with a VOC content less than 7.7 pounds per gallon in such operations; and
    - iii. Make and maintain records sufficient to demonstrate compliance with 310 CMR 7.18(8)(e)3.i. and ii.
- (f) Any person subject to 310 CMR 7.18(8)(a), (b), or (c) ~~or (d)~~ shall maintain instantaneous and continuous compliance at all times.
- (g) Any person subject to 310 CMR 7.18(8)(a), (b), or (c) ~~or (d)~~ shall prepare and maintain daily records sufficient to demonstrate continuous compliance. Records kept to demonstrate compliance shall be kept on site for three years and shall be made available to representatives of the Department and EPA in accordance with the requirements of an approved compliance plan or upon request. Such records shall include, but are not limited to:
1. identity, quantity, formulation and density of solvent(s) used;
  2. quantity, formulation and density of all waste solvent(s) generated;

3. actual operational and performance characteristics of the degreaser and any appurtenant emissions capture and control equipment, if applicable; and
4. any other requirements specified by the Department in any approval(s) and/or order(s) issued to the person.

(h) Persons subject to 310 CMR 7.18(8) shall, upon request by the Department, perform or have performed tests to demonstrate compliance. Testing shall be conducted in accordance with a method approved by the Department and EPA.

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